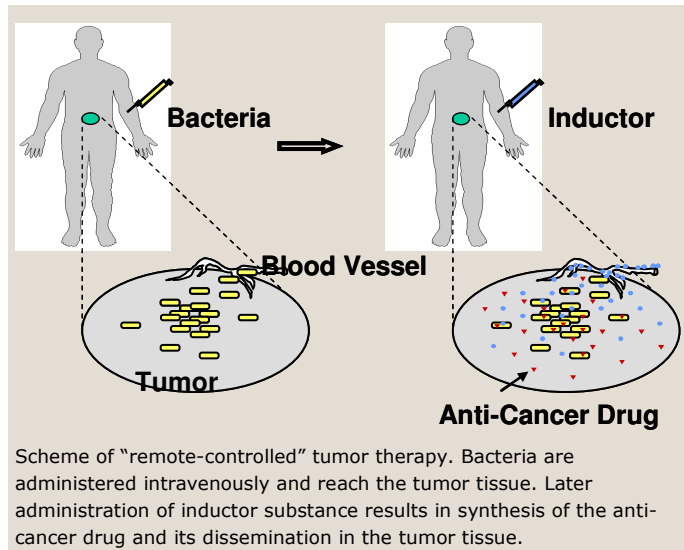


Challenge

The WHO estimates that globally there are 3.5 m deaths and 5.3 m new cases of cancer annually while the patient pool relevant for cancer therapies is rising in line with an aging



global population. Treatment of cancer can be divided into pharmacological and non-pharmacological treatments with cytotoxic drugs still being the most commonly prescribed pharmacological agents. The healing rate of all cancer types averages out 30-40%, so there is an un-questioned need for new treatment opportunities and the observed growth in the global cancer market is increasingly driven by a variety of innovative therapies including bacterial tumor targeting.

Technology

The technology provides bacterial vectors for tumor targeting. The trick of these vectors is a tightly regulated expression cassette that – independently from the bacterial cell cycle - can be "remote-controlled by administration of relevant inductor doses. In addition to its tight regulation in absence of inductor the chosen saccharide inducible promoter of the inventive expression cassette allows for patient-specific regulation of transgene expression due to its dose-dependant response to gradually increasing concentrations. Inductors (saccharides) are non-toxic to the target cell and organism and can be administered via several routes. Further disclosed is a technology that allows for optimised dissemination of these bacterial vectors throughout the entire tumor tissue. Via antibody-based depletion of granulocytes from the tumor tissue, the assembly of the otherwise build-up barrier from invading granulocytes that normally keeps invasive bacteria in the necrotic tumor tissue is prevented, thus allowing for spreading of the bacterial vector into vital tumor tissue.

Commercial Opportunity

The technologies may be explored for various medical applications, predominantly tumor therapy and related diagnostics (eg. marking of tumor cells). Both technologies are offered for in-licensing or co-development.

Developmental Status

Proof-of-principle established *in vivo* (animal model).

Patent Situation

For the bacterial vector, WO 2006/048344, PCT/EP patent application pending with national applications in EU, USA, Canada, Japan, India and China. For the depletion technology, a priority claiming EP patent application was filed in 2007.

Further Reading

Loessner et al., Cell Microbiol. 2007 Jun;9(6):1529-37.

Westphal et al., Containment of tumor colonizing bacteria by host neutrophils (in press)

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